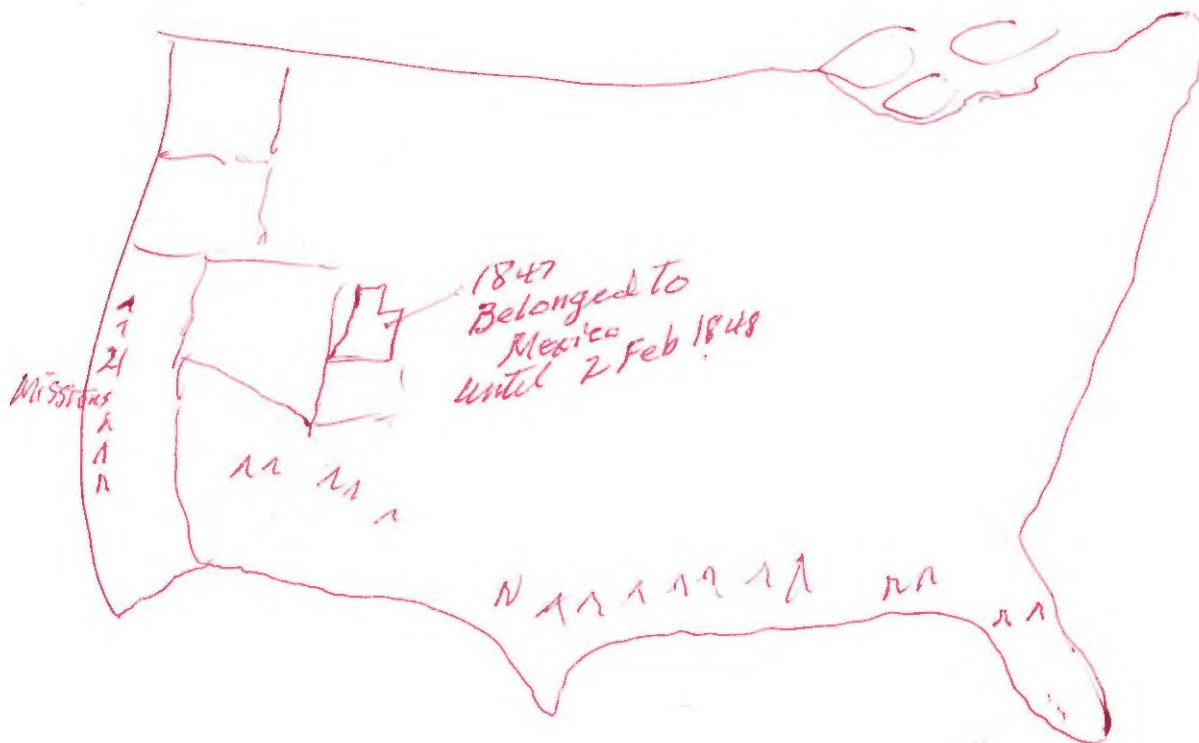


# Overall Spanish Influences



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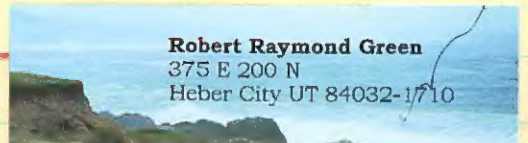
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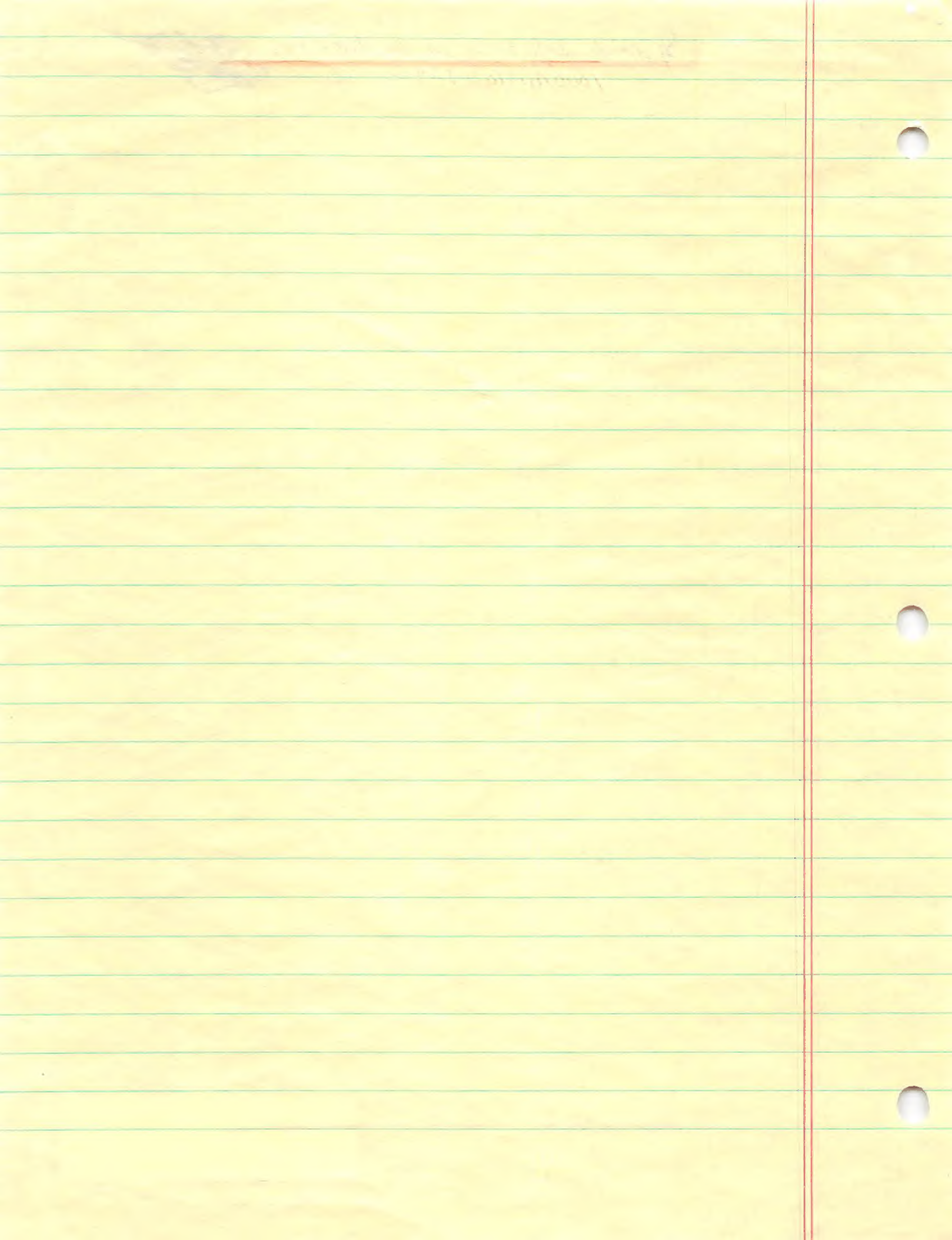
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Spanish Influences in the West & SW =

**Robert Raymond Green**  
375 E 200 N  
Heber City UT 84032-1710







# Spanish Influence in the <sup>South</sup> Early West

Indian children taken as  
Spanish slaves to mine  
everywhere for gold

ie Santa Mts,

Red Creek,

Mt Timpanogos?

adopted vast holdings in west USA  
due to:

See whole 3-Ring  
Binder on this subject

1770s Catholic missions established  
in many spots in So-West + Calif

30 Apr 1803 USA <sup>did</sup> Louisiana Purchase

1853 " " Gadsden Purchase

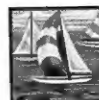
Spanish conquistadors plundered

Spanish Explorers

1492-1803

Spanish in Western Am

15194 on



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# Spanish Influences in SW USA:

Mon  
Metate

from the north. These Indians were hunters who lived in small, temporary communities. They followed the herds of buffalo, mammoths, mastodons, and other large animals that roamed the land. About 7500 B.C., the climate became drier. The herds could not find enough grass to eat and died off. The Indians then lived on small wild animals or the berries and seeds of wild plants.

Between 6500 and 1500 B.C., Indians in what is now the Puebla region discovered how to grow plants for food and became farmers. They grew corn, which became their most important food, and avocados, beans, peppers, squashes, and tomatoes. These Indians were among the first people to cultivate these vegetables. They also raised dogs and turkeys for food. As the wandering bands of hunters became groups of farmers, they established permanent settlements.

**The Growth of Villages.** By 1500 B.C., large farm villages stood along Lake Texcoco in the fertile south-central Valley of Mexico, and in the southern highlands and forests. The farmers used irrigation to improve their crops. The villages grew and new classes of people developed, including pottery makers, priests, and weavers. Trade in polished stones, pottery, and seashells was carried on with distant communities.

By 500 B.C., the villagers began to build flat-topped pyramids with temples on them. Some villages, including Cuicuilco near what is now Mexico City, became religious centers. Indians came from other communities to worship in the temples. Because these people were farmers, they worshiped gods that represented such natural forces as the rain and the sun. The villages grew into towns, from the Valley of Mexico to the Gulf and Pacific coasts, and south to what is now Guatemala.

The Olmec Indians of the southern Gulf Coast made the first great advance toward civilization in the Mexico region. Between 1200 B.C. and about 100 B.C., the

between A.D. 500 and 900, the Classic Period of Mexico. Huge pyramids dedicated to the sun and the moon were built at Teotihuacán, near what is now Mexico City. In the religious centers of southern Mexico and northern Central America, the Maya Indians built beautiful homes, pyramids, and temples of limestone. They recorded important dates on tall, carved blocks of stone, and wrote in a kind of picture writing. In what is now the state of Oaxaca, the Zapotec Indians flattened a mountaintop and built their religious center of Monte Albán. See MAYA; ZAPOTEC INDIANS.

The reasons for the fall of these classic civilizations are not clear. The climate probably became even drier about A.D. 900, and not enough crops could be produced to feed the large population. Perhaps the city people attacked their neighbors to get more land. Or the farmers may have revolted against the priests who had been their rulers. In the north, wild Chichimec tribes attacked and destroyed many cities.

**The Toltec and the Aztec.** Many wars took place after the Classic Period. The fierce Toltec Indians established an empire during the 900's, with a capital at Tula, north of present-day Mexico City. The Toltec invaded the Yucatán Peninsula and rebuilt Chichén Itzá, an old Maya religious center. Toltec influence spread throughout the central and southern regions. This influence included the use of stone pillars to support roofs, the worship of the feathered-serpent god Quetzalcoatl, and human sacrifice in religion. See TOLTEC INDIANS.

The Aztec built the last and greatest Indian empire during the early 1400's, after invading tribes ended the Toltec power. The Aztec empire extended between the Pacific and Gulf coasts, and from the Isthmus of Tehuantepec north to the Pánuco River. The Aztec were skilled in medicine, and composed music and poetry. They were rich with gold, silver, and other treasure paid

## IMPORTANT DATES IN MEXICO

- c. 1500 B.C. Village life developed in the Valley of Mexico.
- c. A.D. 300-900 Great Indian civilizations thrived during the Classic Period.
- c. 900-1200 The Toltec empire controlled the Valley of Mexico.
- c. 1325 The Aztec founded Tenochtitlán (now Mexico City).
- 1519-1521 Hernando Cortés conquered the Aztec empire for Spain.
- 1535 Antonio de Mendoza, the first Spanish viceroy, arrived in Mexico City to rule New Spain (now Mexico).
- 1810 Miguel Hidalgo y Costilla began the Mexican struggle for independence.
- 1821 Mexico won independence.
- 1824 Mexico became a republic.
- 1836 Texas won independence from Mexico.
- 1846-1848 The United States defeated Mexico in the Mexican War, and won much Mexican territory.
- 1855 A liberal government began a period of reform.
- 1863 French troops occupied Mexico City.
- 1864 Maximilian became emperor of Mexico.
- 1867 Liberal forces led by Benito Juárez regained power.
- 1876-1880 and 1884-1911 Porfirio Díaz ruled Mexico as dictator.
- 1910-1911 Francisco I. Madero led a revolution that overthrew Díaz.
- 1914 United States forces occupied Veracruz.
- 1917 A revolutionary constitution was adopted.
- 1920 The government began making revolutionary reforms.
- 1929 The National Revolutionary party was formed.
- 1934 The government began land distribution to farmers.
- 1938 Mexico took over foreign oil-company properties.
- 1942-1945 Mexico's industries expanded rapidly during World War II to supply the Allies with war goods.
- 1953 Women received the right to vote in all elections.
- 1963 Mexico and the United States settled the 99-year-old Chamizal border dispute.
- 1966 Work began on the Chamizal project to shift the course of the Río Grande.
- 1968 The Summer Olympic Games were held in Mexico City.
- 1976 A major hurricane struck Baja California Sur, Mexico, killing 698 persons.

M-383



**First Presiding Bishop<sup>3</sup> of Heber Ward  
February 1861**

Heber was large enough to organize a Ward on 15 November 1860. Joseph Stacy Murdock was ordained by Brigham Young to the office of Bishop. Then Joseph received a letter dated February 1861 at his home in American Fork, Utah, to be the first Bishop in Timpanogos Valley. His First Counselor was John Wesley Witt, with his Second Counselor, Thomaas Rasband.

He promptly responded to the call and came to Heber in the next few days to meet his new challenges.

During his early tenure, he established Presiding Elders in various towns and hamlets: in Wasatch County. In Elkhorn — ~~Sam~~ <sup>Wm.</sup> Denton Moulton; in the Upper Settlement—Sidney Hiram Epperson, Lower Settlement; in Wallsburg, William Madison Wall; in Charleston, Nymphus ~~Caridon~~ <sup>Coridon</sup> Murdock,; Buysville, William McGhie, Daniel Joseph Jacob 13.

(?)Ref. 1. p 15, Joseph Stacy Murdock  
P 32033, 43-45, 75, 105, 113-114, 151, 433, 542, 547, 910, 1074



Monasteries / Presidios  
Some Catholic Missions, Monasteries in California: (21)

Date Established	Name	Location	Success
------------------	------	----------	---------

1823	San Francisco Solano	Sonoma Valley	1776
------	----------------------	---------------	------

Monasteries in Arizona =

San Jose 1777

Tucson 1776

Santa Cruz = Branciforte - 1797

San Xavier del Bac

Santa Clara

Arivaca

Monterey 1770

Guevavi

San Carlos de Monteray

Tubac 1752

Missions in New Mexico

Soledad

Jemes

Taos

Bernalillo

San Gabriel 1599

San Miguel

Santa Fe 1609

Cicuye

Puerto de Luna

San Louis Obispo

Albuquerque 1786

Acoma

Socorro

Santa Barbara 1782

Seneca

Chitilticote

Missions in Texas =

Los Angeles 1781

San Francisco Neches

San Buenaventura

San Francisco de los Tejas

San Juan Capistrano

Nacogdoches 1779

San Gabriel

San Francisco de Espada

San Diego de Alcalá by Father Juniper Serra 1769

San Antonio

San Saba

San Pedro

Missions Louisiana

Pilar

San Miguel de Cuellar

New Orleans

Los Adaes 1716

San Luis Amarillas 1775

San Antonio de Bejaritis

San Juan Capistrano

Goliad (La Bahia) 1749

Laredo 1755

El Paso del Norte 1681

San Paulo

Florida -  
Pensacola 1698  
St Augustine

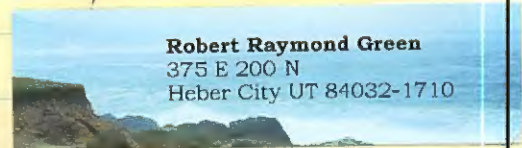
Purissima Concepcion

Ref. New World & Western Movement p. 40-2

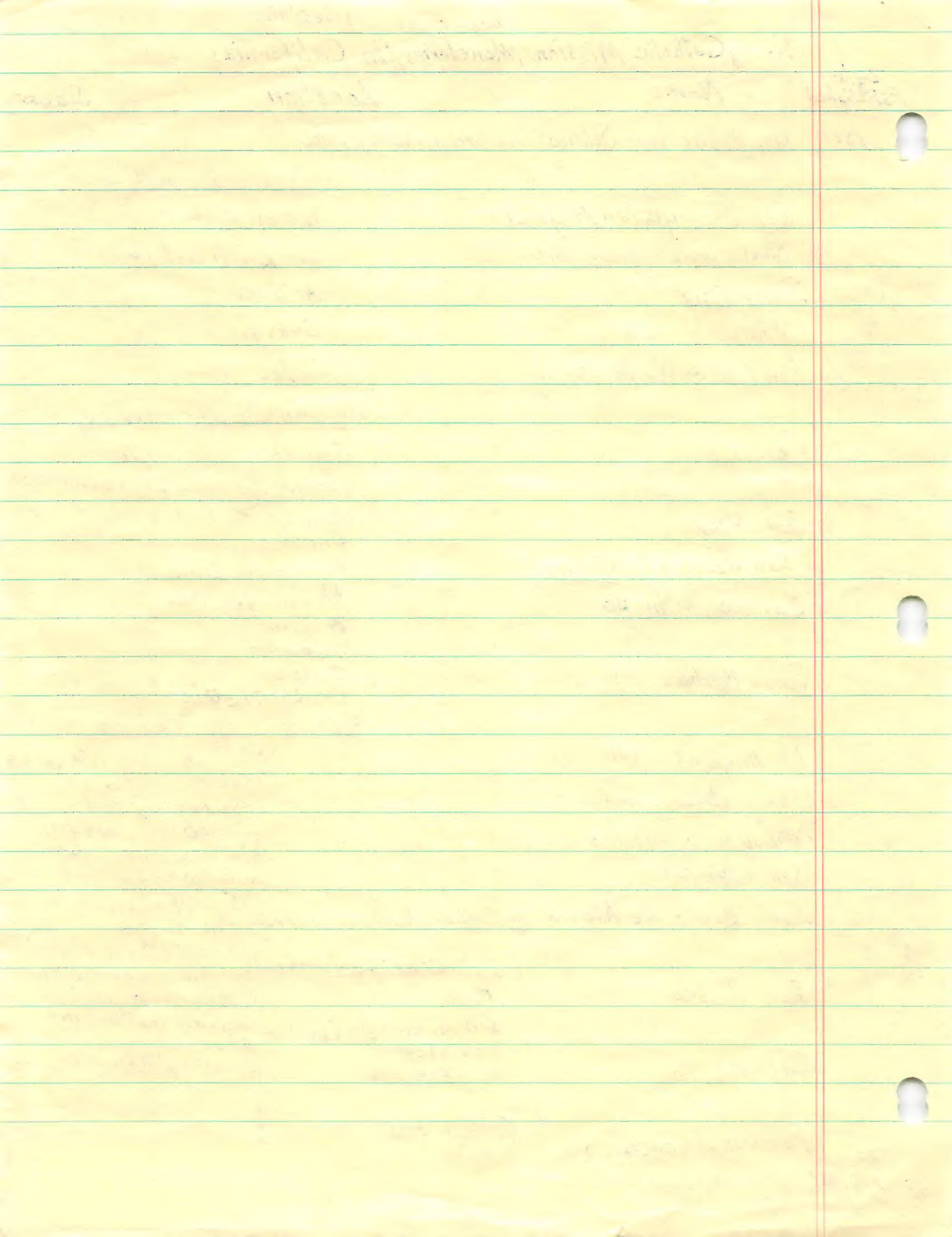
Total 2 in Calif

over

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(i) Spanish & Other Explorers and Exploiters in the Great Southwest

1500 BC to 1803

Dates	Who:	What Happened	Picts
1000 AD	Viking Norsemen exp	Explored into No. America	
1100 AD	The Hopi village of Oraibi was established by a dissident of old Shungopovi. It was located on the 3rd Mesa in northern Arizona.		
1275	Don Pedro de Tovar, Lt. in Coronado Expedition was 1st visitor to Hopi Indians.		
AD 1492	Italian born Christopher Columbus made his first voyage under a Spanish flag from Lisbon to the American Caribbean. C. Columbus made a second voyage to the Caribbean. * Juan Ponce de Leon chim. C. Columbus made a 3rd voyage. " " @ 51 yrs old set sail for Santo Domingo etc.		

(Note The Wheel was known to Indians of America, but the Europeans taught them how to put them to work for <sup>themselves</sup> by building carts, wagons etc.)

AD 1499-1500 Pinzon explored up the Coast of Brazil

← Apr 1500 Pedro Alvares Cabral commanded a Portuguese Fleet on his way to India. He landed in Brazil & claimed that land for the Portuguese, then went on.

AD 1500 to 1580

Short History of Brazil:  
Brazil remained under rule of Portugal, who divided the area into 15 tracts of land from the shoreline to the interior. A line of demarcation. Sao Vicente & Pernambuco were mainly successful as they exported Sugar by use of black slaves.  
1580 Brazil came under Spanish Rule under King Philip II of Portugal.  
1640 Portugal broke free.  
1822 Brazil became independent.

AD 1503-1505 An Italian

Amerigo Vespucci explored up the Coast of Brazil.

Conquistadores brought African Slaves to Americas. In next 400 yrs 10 million were brought to New World. 2 million died enroute.



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## BREAST FEEDING AND JAUNDICE

For sometime pediatricians have had the clinical impression that in the first few days of life normal breast fed infants have higher serum bilirubin levels than bottle fed babies. A recent study by Dahms, et al (1973) showed no significant difference in serum bilirubin concentrations between breast and bottle fed infants in the first 4 days of life. These authors also concluded that the intensity of hyperbilirubinemia was not related to weight loss. In a study of 100 consecutive breast-fed infants whose temperatures were taken every 6 hours, Maisels did not identify a single infant whose temperature exceeded 37.5°C. No relationship between weight loss and body temperature nor between weight loss and serum bilirubin levels has been documented.

Maisels found no significant difference on the 3rd day between the serum bilirubin levels of 115 totally breast-fed infants (mean  $6.9 \pm 3.6$  mg%) and 129 bottle fed infants (mean  $6.5 \pm 3.2$  mg%). However, he did observe that of those infants who remained in hospital for 5 days because of an elevated serum bilirubin level, a significantly greater proportion were breast fed. McConnell, et al, also found that breast-fed infants had significantly higher serum bilirubin levels ( $p < 0.001$ ) than bottle-fed infants on the fifth, but not on the third day of life.

Thus, although there is no justification for ascribing hyperbilirubinemia to breast feeding in any infant in the first 3 days of life, (with the possible exception of Navajo Indians--see below) breast feeding may play a role in jaundice which develops later. If such an association exists, what is the explanation? I believe it is likely that these infants represent one end of the spectrum of true breast milk jaundice (see below) in which the breast milk has an inhibitory effect on bilirubin conjugation.

The degree of inhibition found in inhibitory milks varies widely as (one must presume) does the ability of each infant's liver to cope with the inhibition of conjugation. We should not be surprised, therefore, to find a similarly wide spectrum of the clinical presentation of breast milk jaundice-- or perhaps varieties thereof. The elevated bilirubin levels found in populations of breast fed infants on the fifth day of life suggest that a proportion of those breast milks are inhibitory to a greater or lesser degree. It is equally probably, however, that each infant responds to the inhibitory milk in a different way. This is supported by the observations of Cole and Hargreaves, (1972) who found no relation between the amount of inhibitory substance in breast milk and the degree of neonatal hyperbilirubinemia. On the other, Saland and Coworkers (1974) did find such a relationship in the Navajo population.

### Breast-Milk Jaundice

This is a well recognized clinical syndrome which occurs in about 1% of breast fed infants. These infants develop significant unconjugated hyperbilirubinemia. Their serum bilirubin concentration rises progressively from about the fourth day of life and reaches a maximum by 10 to 15 days. If breast feeding continues, levels of 15 to 25 mg/100 ml persist for 4 to 10 days and then decline slowly, reaching normal values by 3 to 12 weeks of age. However,



(2)

## Sp. Explorers & Exploiters

Dates=

Who

What Happened

AD 1509-1512

Juan Ponce de Leon & 3 ships sailed to the Bahama Islands → to area of St Augustine Florida. He named it Florida. He was seeking the Fountain of Youth.

He conquered Beringuen (Puerto Rico). He died in Havana, Cuba, by an Indian Arrow.

1515-1516 Conquistador Juan Diaz de Solis

Solis probed for water route to Pacific. He was captured by natives at Rio de la Plata, killed & eaten in front of his men.

1519 Alonso Alvarez de Pineda explored & mapped coast of the Gulf of Mexico, including mouths of the Mississippi R. & the Rio Grande Rivers.

1519 Ferdinand Magellan

& his men circled the globe but he died in Philippines in 1521.

1520 Hernan Cortez sailed to Villa Rica to Central Am. Conquered Mexico City. He was a Conquistador.

From 1520 to 1821 Spain claimed Mexico as their own. 1821 Mexico won Independence.

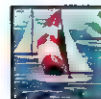
Ayllon

1526

In the Narvaes Expedition, Alvar Nuñez Cabeza de Vaca was stranded on Texas Coast. He lived among Indians until 1534 (= 6 yrs.) then escaped & 3 others. Then they made a 4 yr trek through rough terrain to Culiacan.

1528 A Spanish Franciscan churchman named Juan de Zumarraga (1468-1548) was first Bishop and Archbishop in Mexico City. He helped build the first Seminary & printing press, in Mexico City.

1535 Pedro de Mendoza sailed from Spain to tip of So. Am. & established Buenos Aires. Then he explored the Rio de la Plata River. His deputy Juan de Ayolas sought an overland route to Peru.



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1535 Antonio de Mendoza was the 1st Viceroy of New Spain. He governed fairly & wisely. He tried to protect the Indians. (Mexico)

GUIDELINES FOR THE MANAGEMENT OF HYPERBILIRUBINEMIA  
AS A FUNCTION OF AGE, BIRTH WEIGHT AND BILIRUBIN LEVEL.

Serum Indirect Bilirubin (mg%)	Age <24 hr					Age 24-48 hrs					Age 49-72 hr					Age >72 hr				
	>2500 (gm)	2000 (gm)	1500 (gm)	1000 (gm)	<1000 (gm)	>2500 (gm)	2000 (gm)	1500 (gm)	1000 (gm)	<1000 (gm)	>2500 (gm)	2000 (gm)	1500 (gm)	1000 (gm)	<1000 (gm)	>2500 (gm)	2000 (gm)	1500 (gm)	1000 (gm)	<1000 (gm)
0-5	0	0	0	P	P	0	0	0	PH	P	0	0	0	0	0	0	0	0	0	0
5.1-10	PH	PH	PH	E	E	0	0	P	P	P	0	0	0	P	0	0	0	0	P	P
10.1-14.9	EH	EH	E	E	E	P	P	E	E	E	0	P	P	E	0	0	0	P	E	E
15-19.9	E	E	E	E	E	E	E	E	E	E	P	P	E	E	P	P	P	E	E	E
20 or more	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

0 = No therapy

P = Phototherapy

PH = Phototherapy if hemolysis present

E = Exchange Transfusion

EH = Exchange Transfusion if hemolysis present

In the presence of any of the following, the infant should be treated as if the bilirubin level were in the next higher category:

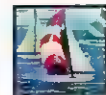
- Perinatal asphyxia
- Five minute Apgar of less than 7
- Respiratory distress syndrome
- Metabolic acidosis (pH below 7.25)
- Serum albumin of 2.5 gm/100 ml or less
- Signs of central nervous system deterioration.

1538 Francisco Vasquez de Coronado (conquistador) (1510-1554) was a Spanish Explorer of American SW. In 1535 he sailed to Mexico to Viceroy Antonio de Mendoza & was apptd. governor of New Galicia. In Feb 1540 he began explor. north of the Rio Grande R. in search of the legendary 7 cities of Gold of Cibola, & the riches of Gran Quivira. He found no wealth, & returned to Mexico in 1542. <sup>in 1540</sup> Another of his groups, Garcia Lopez de Cardenas, discovered the Grand Canyon of the Colorado R. In 1541 another of his group, Hernando de Alarcon sailed up the Gulf of Calif. to the Colorado River. These are new considered brave new explorations. Ref World Book Vol 4: 847-848.

**Coronado's Expedition 1540-1542**

The map below shows the explorations of Francisco Coronado in the American Southwest. Coronado searched in vain for the legendary cities of Cibola and Gran Quivira. The present-day state boundaries are also shown.

- Route of main expedition
- - - - - Route of secondary expedition
- Indian pueblo
- Spanish settlement





are potential candidates for phototherapy. If one assumes 10-15% of low birth weights and 2% of term infants receive phototherapy - about 90,000 infants will be "put under the lights" annually in the U.S. alone.

#### METABOLIC EFFECT

- 1) Reduces total pool of bilirubin
- 2) Reduces biologic half-life of bilirubin
- 3) Does not decrease daily turnover
- 4) Increased the rate of bilirubin and BSP excretion by the liver

#### Site of action

- 1) Photodegradation appears to take place largely in the skin or cutaneous capillaries
- 2) ? liver

#### Phototherapy documented effects in the human infant:

- a) Skin
  - bleaching
  - tanning
  - bronzing
- b) Increased insensible water loss
- c) Vasodilatation of the peripheral circulation
- d) Thermoregulation (hyperthermia)
- e) Gut transit time increased
- f) Fecal excretion of nitrogen, sodium, potassium increased
- g) Stool water loss increased two-threefold
- h) Decrease in growth (short term)
- i) Increased excretion of tryptophan metabolites
- j) Decrease platelet count

#### Potential iatrogenic effects which have not been documented in the human infant:

- a) Neurotoxicity of photodegradation products
- b) Decreased physical growth (long term)
- c) Retinal damage (eyes patched)
- d) Decreased red cell survival
- e) Toxicity to lymphocytes
- f) Photodynamic damage
- g) Chromosome structure
- h) Serotonin metabolism
- i) Potential mutagenicity (skin)
- j) Potential tissue injury mediated by photosensitized endogenous and exogenous substances (such as riboflavin)

(4)

1535-1537 Almagro  
explored South from Cuzco to  
Copacabana thence to Valparaiso.

1539 Fray Marcos de Niza explored into <sup>New</sup> Mexico & Arizona  
Found 7 cities of Cibola, but no wealth.  
1539-1543 Hernando de Soto & Luis de Moscoso landed in Florida. They traveled  
inland across Florida to the Mississippi R. de Soto got a fever & died.  
de Moscoso took their men back to Mexico, from whence they came.  
1540-1544 Cabeza de Vaca

1541 Pedro de Valdivia led the conquest & settlement of Chile.  
He also established - Santiago del Nuevo Extremo <sup>or</sup>  
Santiago, Chile.

1542 Francisco de Orellana  
& 60 men sailed down the  
Napo R. into the Amazon &  
explored it for 6 mos. Thence  
safely to the Atlantic Ocean  
<sup>down river</sup>

1544 Lopez de Aguirre got into war in Peru killing many Indians

1545 Mt. Potosi in Bolivia was mined by Spaniards using  
local Indian labor. They also minted silver coins,  
which stimulated commerce in Europe.

1560 Lopez de Aguirre sailed down the Amazon River looking for El Dorado.

20 Mar 1565 Pedro Menendez de Aviles (1519-1574) founded St.  
Augustine in Florida. He was a Naval Officer & guided  
Treasure Ships from America to Spain. He would fight off  
pirates, off the French Coast. He authorized a Fort at Saint  
Augustine to be built by Aug 1865.

1567 <sup>Englishman</sup> Sir Francis Drake raided Spanish Settlements in the Caribbean. Also he  
raided African Coasts & traded slaves in his early career

1573 & on Franciscan Catholic Priests established a series of missions along the  
Atlantic & Gulf of Mexico Coasts & along the South border of USA & into Calif.

- 3) Use of alternative pathways, that normally play only a minor role, for bilirubin excretion. (phototherapy)

At the present time- exchange transfusion and phototherapy are the 2 commonly used modes of therapy when therapy is needed.

#### EXCHANGE TRANSFUSION

- a) Recommended maximal total serum bilirubin concentrations (mg/100ml)\* for exchange transfusion

Birth weight category (gm)+	Uncomplicated course	Complicated course++
Less than 1,250	13	10
1,250-1,499	15	13
1,500-1,999	17	15
2,000-2,499	18	17
2,500 and up	20	18

\*Direct-reacting bilirubin concentrations are not sub-tracted unless they amount to more than 50% of the total serum bilirubin concentration. Applicable during the first 28 days of life.

+Equivalent gestational age categories may be used in lieu of birth weight for small-for-gestational age (SGA) infants.

++Complications include: perinatal asphyxia and acidosis, postnatal hypoxia and acidosis, significant and persistent hypothermia, hypoalbuminemia, meningitis and other significant infection, hemolysis, and hypoglycemia.

- b) Complication of exchange transfusion

Vascular	Embolization with air or clots Thrombosis
Cardiac	Arrhythmias, Volume overload, Arrest
Electrolyte	Hyperkalémia, Hypernatremia, Hypocalcemia, Acidosis
Clotting	Overheparinization, Thrombocytopenia
Infections	Bacteremia, Serum hepatitis
Miscellaneous	Mechanical injury to donor cells Perforation, Hypothermia, Hypoglycemia

#### PHOTOTHERAPY

In 1958 Cremer and his co-workers observed that the exposure of premature infants to sunlight or blue flourescent light produced a fall in serum bilirubin concentration. Since then the use of phototherapy has grown to where it is being used in 96% of hospitals delivering more than 2,000 infants per year. Of the 220,000 infants under 2500 gm born annually in the U.S., about 10-15%



- 1583 Antonio de Espejo came to the Hopi Indian Village of Oraibi looking for Gold. He found silver but no gold.
- 1598 Friars with Juan de Onate expedition, established the first mission in New Mexico. In the next 100 yrs Franciscan Priests founded more than 40 missions — mostly along the Rio Grande R.

1600

- 1603 Juan de Onate started colonies <sup>along</sup> the Rio Grande River.
- 1603 Santa Fe established as end of trail from Vera Cruz.
- 1605 British settled Jamestown (It is now 402 yrs old).
- 1608 Juan de Onate tried to find Lake Copala or Great Salt Lake.
- From 1609 to 1779 There were at least 31 Catholic monasteries & Presidios built <sup>from England</sup> along the South border of USA from Arizona to Florida.
- 1620 Pilgrims landed at Plymouth Rock.
- 1625-9 Father Alonso de Benevides established 10 missions of the Catholic Church — mostly along the border of USA & Mexico.
- 1629 The Spanish Catholics established a mission at San Francisco, California and through 1680 their missionaries tried to convert the Hopis but they resisted religious interference.
- 1630 to 1640 The Spaniards filtered into New Mexico.
- 1640 An epidemic <sup>among</sup> New Mexico Indians killed 3,000 Indians. That year.

There is no convenient method for the direct determination of tissue bilirubin levels. Currently, indirect methods to measure free bilirubin are employed that quantify the relative saturation of the serum albumin with bilirubin. The principle underlying these tests is based on the mass action equation which governs the binding of bilirubin to albumin:  $Alb + B \rightleftharpoons AlbB$ . From this equation, it can be seen that the amount of free bilirubin varies inversely with the concentration of albumin available to bind it. When the available albumin becomes saturated with bilirubin, any new bilirubin formed will directly increase the concentration of free bilirubin. However, as this occurs, the bilirubin is no longer restricted to the aqueous phases of the albumin space but will diffuse into intracellular spaces. Consequently, even though the albumin is virtually saturated, one would not expect the aqueous phase concentration of free bilirubin in plasma to rise very much, for it will continually diffuse from the plasma into cells. Thus, the methods which attempt to measure free bilirubin in plasma do not lend themselves to meaningful quantitative measurement.

The methods devised to measure the degree of saturation of albumin with bilirubin are more easily quantitated. In addition, they not only can predict whether the free bilirubin concentration is likely to be high but also can quantitate the margin of reserve present before the free bilirubin concentration will reach the critical concentration at which metabolic damage to cells is likely to occur.

Measurements in a large number of infant sera using different methods indicate that the ability of albumin to bind bilirubin (tightly) at the primary binding site varies from approximately 0.5 to 1 mole of bilirubin per mole of albumin. A bilirubin/albumin molar ratio of 1 represents about 8.5 mg of bilirubin per gram of albumin. Thus, a low birth weight infant with a serum albumin concentration of 2 g/dl and an albumin binding capacity of 0.5 moles bilirubin/mole albumin could only bind (tightly) 8.5 mg/dl bilirubin. Another infant with the identical serum albumin concentration but a binding capacity of 1 mole bilirubin/mole albumin would be able to bind 17 mg/dl of bilirubin. In the absence of a measurement of binding capacity, therefore, the margin for error (and possible Kernicterus) is alarmingly large.

The tests which have been most widely used in clinical studies of albumin bilirubin binding are the HBABA - 2(4) -- hydroxybenzenesazo) benzoic acid binding, salicylate saturation index, peroxidase oxidation, and Sephadex G-25 column chromatography.

## CLINICAL MANAGEMENT

Because of the multiple causes of neonatal hyperbilirubinemia, all efforts should be made to identify the etiology of the infants jaundice before treatment is initiated.

Therapy includes three choices:

- 1) Mechanical removal of bilirubin by means of exchange transfusion.
- 2) Acceleration of normal metabolic pathways for bilirubin excretion by pharmacologic means. (e.g. phenobarbital)

Spanish

Dates

Who

What

stated  
of volunteer service as missionary

1719 Father Juan de la Cruz in the Sierra Gorda region of Mexico. Father Serra was administrator of the Apostolic College of San Fernando & supported mission efforts.

1765 Juan Maria Antonio Rivera was sent by authorities of New Mexico into western Colorado from Santa Fe. The small

party was led by Rivera, along old Ute Indians, & Spaniards. They bartered  $\pm$  each other. Rivera got to the Fe to Santa Fe. Rivera returned July 1765. Dolores River in western Colo.

Rivera was sent again by <sup>authorities</sup> north out of Santa Fe along same trails into western Colo & as far

as San Juan, Utah. Rivera returned from Mexico

1767 Jesuit order was banished from Mexico as Catholic. Missionaries established in from 1769 to 1823. There were 21 Missionaries established in California.

1769 Father Juanipero Serra accompanied the expedition of Jose de Galvez and founded the mission San Diego de Alcalá at San Diego, Calif. = The first of 21 missions in

Calif. The last was San Francisco Solano in 1823, located in Sonoma Valley. Father Serra established nine missions between San Diego to San Francisco, to save off Russians from moving down the California coast, from the northwest.

1774 Juan Bautista de Anza (1736-1788) led an expedition from Tubac (now Arizona) to the Monterey Mission. Anza left Tubac again & explored San Francisco Bay area & chose the spot for the first European settlement. Later that year, Jose Joaquin Moraga established that settlement.



Additional laboratory tests where indicated might include:

	Maternal	Blood group and indirect Coombs' test Serology	Necessary for evaluation of possible ABO or Rh incompatibility Rule out congenital syphilis
	Infant	Hemoglobin  Reticulocyte count Red cell morphology  Platelet count White cell count  Sedimentation rate  Direct bilirubin  Immunoglobulin M Blood group and direct and indirect Coombs' test  Carboxyhemoglobin  Urinalysis	Anemia suggests hemolytic disease or large untrapped hemorrhage. Hemoglobin above 22 gm/dl associated with increased incidence of jaundice. Elevation suggests hemolytic disease. Spherocytes suggest ABO incompatibility or hereditary spherocytosis. Red cell fragmentation seen in disseminated intravascular coagulation. Thrombocytopenia suggests infection. Total white cell count less than 5000/mm <sup>3</sup> or increase in band forms to greater than 2000/mm <sup>3</sup> suggests infection. Values in excess of 5 during the first 48 hours indicate infection or ABO incompatibility. Elevation suggests infection or severe Rh incompatibility. Elevation indicates infection. Required to rule out hemolytic disease as a result of isoimmunization. Elevated in infants with hemolytic disease or untrapped hemorrhage. Presence of reducing substance suggests diagnosis of galactosemia.

Don't expect to find the answer in all jaundiced babies. In babies in our well baby nursery whose serum bilirubin concentrations exceed 12 mg/dl, we have found the cause in only 50%. In some cases, this simply reflects our inability to diagnose mild degrees of hemolysis with routine lab techniques. In many, we are dealing with infants who are compromised in their ability to clear bilirubin from the plasma on a temporary basis. (ie hypoxic injury to the liver)

If conjugated hyperbilirubinemia is diagnosed, the differential diagnosis includes the following:

1. Hepatitis of infectious origin

Giant cell hepatitis of presumed viral origin  
 Rubella, cytomegalovirus  
 Coxsackievirus, echovirus, "massive hepatic necrosis"  
 Herpesvirus, varicella  
 Toxoplasmosis  
 Lues, listeriosis, tuberculosis  
 Hepatitis associated antigen

2. Biliary obstruction

Extrahepatic atresia  
 Extrahepatic stenosis and choledochal cyst  
 Bile plug syndrome  
 Tumors (hepatoma, bile duct sarcoma)  
 Fibrocystic disease and meconium ileus

3. "Toxic" hepatitis

Sepsis and coliform pyelonephritis  
 Diarrhea  
 Intestinal obstruction (ileum)  
 Therapeutic hyperalimentation

-8- 1776 US Revolutionary War started  
1776 Dominguez + Escalante =

12  
29 July  
1776

By permission from authorities in Santa Fe, New Mexico, Francisco Antonasio Dominguez and Sylvestre Velez de Escalante set out from Santa Fe to find a route to the Catholic Monastery in Monterey, California.

They traveled north across the headwaters of the San Juan River, thence to the Grand + White Rivers in western Colorado. Then west to the Green River by 13 Sept. 1776, thence to the Plain of the Holy Cross. They crossed the Colorado River near Rangely, Colorado, thence thru present Ashley Valley and west along the high foothills of the Uinta Mts. + up the Arkansas River to the Summit at Thistle Creek to <sup>present</sup> Indianola + into Strawberry Valley. Here they fished for lunger trout for 2 days.

They then traveled down the present Diamond Fork canyon into Spanish Fork Canyon stream by 23 Sep. to present Utah Lake; Visiting the Timpanogot Indian tribe who were fish eaters there. The Friars called them "Lagunas", because they <sup>lived</sup> on the Lake front, and ate fish.

Here they asked for a guide onto California. No one volunteered. The Indians knew the fierce disposition of the Shiwitzi tribe enroute. Snow began to fall. For these 2 main reasons the exploring party decided to head back to Santa Fe. They proceeded to present Escalante, Utah, thence to the Colorado River "Crossing of the Fathers", on to the Zuni Indian Villages, then on back to Santa Fe, New Mexico; all in the same year of 1776.

vrqmd 11-25-06

over

over

over



1800

1803 U.S. Pres. Thomas Jefferson purchased a large landmass from French Napoléon Bonapart I for \$15,000,000.00. This land extended the young republic from the Mississippi River to the Rocky Mts., much of it yet unexplored.

1804-1806 Captain Meriwether Lewis & Lt. Wm Clark were commissioned by Pres. Jefferson & Congress to explore up the Missouri R. from St Louis to the Rocky Mts. & beyond. They plodded across the Continental Divide & proceeded down the <sup>Snake</sup> Columbia R. to the Pacific Ocean. They called it the "Corps of Discovery" and <sup>that</sup> is what it was. They then returned by basically the same route, taking 2 long years to make the journey.

Nov 1806 Lt. Zebulon Montgomery Pike <sup>pushed from the south end of Louisiana Purchase</sup> discovered Pike's Peak in Colo.

1810 Miguel Hidalgo y Costilla began the Mexican struggle for their independence.

1811 Astorian Trappers trapped into NW Utah.

1812 Astorian " Robert Stuart discovered So. Pass in SW Wyoming.

1821 Mexico won its independence from Spain

1824 " became a republic.

1824 Ashley & Henry trapped into Utah from NE

1824 203 Trappers came into Utah from SE.

6 Apr 1830 C of C of h DS organized in NY state

1836 Texas won its independence from Mexico

1846-1848 USA defeated Mexico in the Mexican War & obtained much land.

1855 A liberal government in Mexico began a reform movement

1863 French troops occupied Mexico City. Mexico lost Independence.

1864 " Maximilian became Emperor of Mexico.

Date	What	Fict
1642		
1649	Charles Albanel (1616-1696) was a Jesuit missionary in Quebec, Canada, from France in 1649. His work among the Indians of Montagnias at Tadoussac.	
1671 1675	Albanel traveled overland to Hudson's Bay, and again in 1673-1674. Agents of the English II II Fur Co. sieged him & sent him to England. He later returned to Canada missions at Green Bay & Sault Ste. Marie.	
1659	Spanish records show that 300 horses were stolen by hit & run tactics by the Utes & Apaches. They drove them north into the Rocky Mts.	
At one time,	Spain owned Mexico, New Mexico, Arizona, Utah, Nevada, and California.	
By 1680 1686	Missions had been established among most of the New Mexico Indians. An Indian, named Pope led a rebellion in Santa Fe killing near 400 Spaniards, and drove out the rest from " " and northern New Mexico.	
1687 to 1711	Eusebio Francisco Kino (1644-1711) was born in Tyrol. He was a Jesuit Missionary and Explorer. He directed Missionary work from headquarters at Nuestra Senora de los Dolores in Sonora Mexico. He founded missions at San Xavier del Bac in 1700 near Tucson, at Tumacacori in USA. He aided the Pima Indians in Pimeria Alta. He established other missions in northern Mexico, & Baja California,	
1690	The first mission built on the Texas Coast was near what is now Weches, Texas. It failed because of Indian hostility.	
1700		
After 1716	Some missions <sup>were</sup> established in San Antonio, Tex. - One was San Antonio de Valero (The Alamo)	
1722	The Franciscan Mission of Nuestra Senora del Espiritu Santo de Zunga was built at Matagorda Bay to help protect the Coast from the French. It was later moved inland.	



4. Hemolytic disease

Erythroblastosis fetalis

5. Heredofamilial and metabolic disease

Familial giant-cell hepatitis and biliary atresia  
Trisomy E

Down's syndrome, leprechaunism

Zellweger's syndrome ("biliary dysgenesis")

Dubin-Johnson disease, Rotor's syndrome

Wilson's disease

Alpha-antitrypsin deficiency

"Idiopathic neonatal hemochromatosis"

Fibrocystic disease

Indian childhood cirrhosis

Galactosemia, fructosemia, tyrosinemia

Niemann-Pick disease, Gaucher's disease

Wolman's disease, glycogenosis IV

Cholestatic syndromes

Paucity of intrahepatic biliary ducts

Bile salt disorder?

Familial hepatosteatorrhea

Causes of prolonged indirect hyperbilirubinemia in the newborn period include the following:

Breast milk jaundice

Hemolytic disease

Hypothyroidism

Pyloric stenosis

Crigler-Najjar

Ref: Grubbs-Electronic Publishing Inc.  
as a group in 1930 1900 = Feast Day.  
All these 8 martyrs were canonized 1949.  
All 8 killed by Iroquois Indians.  
Jean de Lalande ( ? d 1646 )  
killed by  
mission  
aries  
French }  
Laymen: Rene Goupil ( 1608-1642 )  
Gabriel Lallemant ( 1610-1649 )

Isaac Jogues ( 1601-1646 )

Charles Garnier ( 1606?-1649 )

Antoine Daniel ( 1601-1648 )

Noel Chabanel ( 1613-1649 )

Priests: Jean de Brebeuf

Eight Catholic Martyrs of New America =

1642-1649

1642